## IN THE CLAIMS

Please amend claim 14. Please cancel claims 16, 24-39, and 42-59. A complete listing of the claims is shown below.

1. (Original) A method of performing spatial processing in a wireless time division duplexed (TDD) multiple-input multiple-output (MIMO) communication system, comprising:

processing a first transmission received via a first link to obtain at least one eigenvector usable for spatial processing for both data transmission received via the first link and data transmission sent via a second link; and

performing spatial processing for a second transmission with the at least one eigenvector prior to transmission over the second link.

2. (Original) The method of claim 1, further comprising:

performing spatial processing on a third transmission received via the first link with the at least one eigenvector to recover data symbols for the third transmission.

3. (Original) The method of claim 1, wherein the first transmission is a steered pilot received on at least one eigenmode of a MIMO channel for the first link.

4. (Original) The method of claim 1, wherein the first transmission is a MIMO pilot comprised of a plurality of pilot transmissions sent from a plurality of transmit antennas, and wherein the pilot transmission from each transmit antenna is identifiable by a receiver of the MIMO pilot.

5. (Original) The method of claim 4, wherein the processing a first transmission includes

obtaining a channel response estimate for the first link based on the MIMO pilot, and

decomposing the channel response estimate to obtain a plurality of eigenvectors usable for spatial processing for the first and second links.

6. (Original) The method of claim 5, wherein the channel response estimate for the first link is decomposed using singular value decomposition.

7. (Original) The method of claim 4, further comprising:

performing spatial processing on pilot symbols with the at least one eigenvector to generate a steered pilot for transmission on at least one eigenmode of a MIMO channel for the second link.

8. (Original) The method of claim 1, wherein the second transmission is spatially processed with one eigenvector for transmission on one eigenmode of a MIMO channel for the second link.

9. (Original) The method of claim 1, wherein the second transmission is spatially processed with a normalized eigenvector for transmission on one eigenmode of a MIMO channel for the second link, the normalized eigenvector including a plurality of elements having same magnitude.

10. (Original) The method of claim 1, wherein the first transmission is a steered pilot generated with a normalized eigenvector for one eigenmode of a MIMO channel for the first link, the normalized eigenvector including a plurality of elements having same magnitude, and wherein one eigenvector usable for spatial processing for the first and second links is obtained.

11. (Original) The method of claim 1, further comprising:

calibrating the first and second links such that a channel response estimate for the first link is reciprocal of a channel response estimate for the second link.

12. (Original) The method of claim 11, wherein the calibrating includes

obtaining correction factors for the first link based on the channel response estimates for the first and second links, and

obtaining correction factors for the second link based on the channel response estimates for the first and second links.

13. (Original) The method of claim 1, wherein the TDD MIMO communication system utilizes orthogonal frequency division multiplexing (OFDM), and wherein the processing for the first transmission and the spatial processing for the second transmission are performed for each of a plurality of subbands.

14. (Amended) An apparatus in a wireless time division duplexed (TDD) multiple-input multiple-output (MIMO) communication system, comprising:

means for processing a first transmission including at least one steered pilot received on at least one eigenmode of a MIMO channel via a first link to obtain at least one eigenvector usable for spatial processing for both data transmission received via the first link and data transmission sent via a second link; and

means for performing spatial processing for a second transmission with the at least one eigenvector prior to transmission over the second link.

15. (Original) The apparatus of claim 14, further comprising:

means for performing spatial processing on a third transmission received via the first link with the at least one eigenvector to recover data symbols for the third transmission.

16. (Cancelled)

17. (Original) The apparatus of claim 14, wherein the first transmission is a MIMO pilot comprised of a plurality of pilot transmissions sent from a plurality of transmit antennas, and wherein the pilot transmission from each transmit antenna is identifiable by a receiver of the MIMO pilot.

18. (Original) The apparatus of claim 17, further comprising:

means for obtaining a channel response estimate for the first link based on the MIMO pilot; and

means for decomposing the channel response estimate to obtain a plurality of eigenvectors usable for spatial processing for the first and second links.

19. (Original) An apparatus in a wireless time division duplexed (TDD) multiple-input multiple-output (MIMO) communication system, comprising:

a controller operative to process a first transmission received via a first link to obtain at least one eigenvector usable for spatial processing for both data transmission received via the first link and data transmission sent via a second link; and

a transmit spatial processor operative to perform spatial processing for a second transmission with the at least one eigenvector prior to transmission over the second link.

20. (Original) The apparatus of claim 19, further comprising:

a receive spatial processor operative to perform spatial processing on a third transmission received via the first link with the at least one eigenvector to recover data symbols for the third transmission.

21. (Original) The apparatus of claim 19, wherein the first transmission is a steered pilot received on at least one eigenmode of a MIMO channel for the first link.

22. (Original) The apparatus of claim 19, wherein the first transmission is a MIMO pilot comprised of a plurality of pilot transmissions sent from a plurality of transmit antennas, and wherein the pilot transmission from each transmit antenna is identifiable by a receiver of the MIMO pilot.

23. (Original) The apparatus of claim 22, wherein the controller is further operative to obtain a channel response estimate for the first link based on the MIMO pilot and to decompose the channel response estimate to obtain a plurality of eigenvectors usable for spatial processing for the first and second links.

24. (Cancelled)

25. (Cancelled)

26. (Cancelled)

27. (Cancelled)

28. (Cancelled)

29. (Cancelled)

30. (Cancelled)

31. (Cancelled)

32. (Cancelled)

33. (Cancelled)

34. (Cancelled)

35. (Cancelled)

36. (Cancelled)

37. (Cancelled)

38. (Cancelled)

39. (Cancelled)

40. (Original) A method of performing spatial processing in a wireless time division duplexed (TDD) multiple-input multiple-output (MIMO) communication system, comprising:

performing spatial processing on pilot symbols with a normalized eigenvector for one eigenmode of a MIMO channel to generate a first steered pilot for transmission via the one eigenmode of the MIMO channel, the normalized eigenvector including a plurality of elements having same magnitude; and

performing spatial processing on data symbols with the normalized eigenvector prior to transmission on the one eigenmode of the MIMO channel.

41. (Original) The method of claim 40, further comprising:

performing spatial processing on pilot symbols with an unnormalized eigenvector for the one eigenmode to generate a second steered pilot for transmission via the one eigenmode of the MIMO channel.

42. (Cancelled)

43. (Cancelled)

44. (Cancelled)

45. (Cancelled)

46. (Cancelled)

47. (Cancelled)

48. (Cancelled)

49. (Cancelled)

50. (Cancelled)

51. (Cancelled)

52. (Cancelled)

53. (Cancelled)

54. (Cancelled)

55. (Cancelled)

56. (Cancelled)

57. (Cancelled)

58. (Cancelled)

59. (Cancelled)